

PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number: MP0358 / 13361-058001
	Application Number 10/811,031	Filed March 26, 2004
	First Named Inventor Xiaodong Jin et al.	
	Art Unit 2836	Examiner Scott Allen Bauer

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a Notice of Appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

- applicant/inventor.
- assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b)
is enclosed. (Form PTO/SB/96)
- attorney or agent of record 58,720
(Reg. No.)
- attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34



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December 18, 2007
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

- Total of one forms are submitted.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Xiaodong Jin et al. Art Unit : 2836
Serial No. : 10/811,031 Examiner : Scott Allen Bauer
Filed : March 26, 2004 Conf. No. : 1354
Title : METHOD AND APPARATUS FOR IMPROVING SUPPLY NOISE REJECTION

MAIL STOP AF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Claims 1-3, 5-11, 13-19, 21-26, 28-32, and 34-36 remain pending in the Application. The Examiner indicated that claims 6, 7, 14, 15, 22, 23, 29, 30, 35, and 36 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Examiner rejected claims 1-3, 5, 8-11, 13, and 16 under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 6,738,248 (“Jenkins”) in view of U.S. Patent No. 5,994,760 (“Duclos”) and PCT Publication No. WO 02/05380 (“Rutfors”). The Examiner rejected claims 17-19, 21, 24-26, 28, 31, 32, and 34 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Jenkins in view of Duclos. Applicants respectfully traverse these rejections.

I. **There is no reasonable rationale for combining Duclos and Jenkins, and therefore the cited art fails to teach or suggest, at least, a separate electrostatic discharge clamp directly coupled between a high voltage supply and a low voltage supply so as to provide a discharge path there between during an electrostatic discharge event.**

Claim 1 is directed to a low noise amplifier that includes a radio frequency input and an electrostatic discharge (“ESD”) protection circuit to shunt ESD current during positive and negative ESD events away from the radio frequency input and through a first supply. The ESD protection circuit includes a pair of diodes and a separate ESD clamp directly coupled between a high voltage supply and a low voltage supply so as to provide a discharge path there between during an ESD event. The first diode of the pair has a first terminal coupled to the radio frequency input and a second terminal directly coupled to a first supply. The second diode of the

pair has a second terminal coupled to the radio frequency input and a first terminal directly coupled to the first supply.

Although the Examiner cites Jenkins' protection circuit 108 as being Applicants' claimed electrostatic discharge protection circuit, he acknowledges that Jenkins' protection circuit does not show Applicants' claimed separate electrostatic discharge clamp directly coupled between a high voltage supply and a low voltage supply so as to provide a discharge path there between during an electrostatic discharge event. The Examiner contends that Fig. 2 of Duclos shows Applicants' claimed ESD clamp. The Examiner states that it would have been obvious to incorporate Duclos' clamp "between the terminals VDD and VSS of Jenkins et al., for the purpose of providing bidirectional protection to the buffer (102) from ESD occurring from the power supply." Applicants respectfully disagree. Applicants respectfully submit that the Examiner has not shown a reasonable rationale for combining Jenkins and Duclos.

Jenkins shows a protection circuit 108 that protects a differential input buffer 102 during ESD events. (Col. 3, lines 6-10). Jenkins discloses three embodiments of his protection circuit which employ three different techniques for discharging current from ESD events to the positive and negative voltage supplies. Jenkins' first embodiment includes two back-to-back diode pairs coupled between the buffer inputs and a negative voltage supply (VSS) that discharge ESD current directly to VSS during an ESD event. (Fig. 1; Col. 3, lines 16-20, 43-53). In a second embodiment, the diode pairs are coupled between the buffer inputs and a positive voltage supply (VDD) and discharge ESD current to VDD. (Fig. 2; col. 4, lines 6-11). In Jenkins' third embodiment, a diode pair is coupled between the buffer inputs and an intermediate node 304. (Fig. 3; Col. 4, lines 35-39). Jenkins' diodes D5 and D6 discharge current from over-voltages at the input to VDD and VSS, respectively, and form a voltage clamp, maintaining the voltage between VSS and VDD at about 1.4V. (Col. 4, lines 39-45).

The Examiner states that it would have been obvious to incorporate Duclos' voltage clamp between Jenkins' VDD and VSS terminals to provide "bidirectional protection to the buffer (102) from ESD occurring from the power supply." Applicants respectfully assert that Jenkins already discloses a voltage clamp between the VDD and VSS terminals for providing bidirectional ESD protection to the buffer. As shown in Jenkins' Fig. 3, diodes D5 and D6 form a voltage clamp between supplies VDD and VSS to protect the buffer 102 from ESD events

occurring at either supply. (Fig. 3; col. 4, lines 39-45). No reasonable rationale exists to modify Jenkins' protection circuit to include Duclos' clamp – to the contrary, Jenkins teaches away from adding Duclos' clamp, because this addition would duplicate Jenkins' existing protection techniques.

The Examiner responds to these arguments by stating that “[a]lthough Jenkins provides a method of shunting ESD events between VDD and VSS in Fig. 3, this embodiment is not the only way to provide rail-to-rail protection to the circuit. In fact, if one of ordinary skill in the art where [sic] concerned with providing bi-directional protection between VDD and VSS, the embodiment of Jenkins' Fig. 3 would not be used.” As the Examiner himself acknowledges, Jenkins already discloses a method of providing rail-to-rail protection. In fact, Jenkins discloses *three different* protection circuit configurations, one of which – shown in Fig. 1 – follows the same back-to-back diode clamp configuration taught by Duclos.

Given that Jenkins already discloses a clamp protection circuit, one of skill in the art would not have seen any reason to combine the elements of Duclos and Jenkins in the manner suggested by the Examiner. *See KSR Intl. Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007) (“[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does”). Rather, the Examiner’s asserted combination is premised on the improper use of hindsight. *See, e.g., Orthopedic Equipment Co., Inc. v. U.S.*, 702 F.2d 1005, 1012 (Fed. Cir. 1983) (“It is wrong to use the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.”). Applicants respectfully assert that the Examiner has not presented a reasonable rationale for combining Jenkins and Duclos.

For at least these reasons, Applicants respectfully assert that the Examiner has not carried his burden of establishing a *prima facie* case of obviousness, and therefore claim 1 is allowable.

II. There is no reasonable rationale for combining Rutfors and Jenkins, and therefore the cited art fails to teach or suggest, at least, a radio frequency input.

The Examiner further acknowledges that Jenkins does not teach that the input is a radio frequency input. The Examiner suggests that Rutfors shows this limitation and contends that it

would have obvious to combine the teachings of Jenkins and Rutfors “for the purpose of providing ESD protection to a wireless circuit thus preventing the [low noise amplifier] from being damaged.”

Again, Applicants respectfully submit that the Examiner has not carried his burden of establishing a *prima facie* case of obviousness with respect to the asserted combination of Jenkins and Rutfors. The Examiner states that “the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus satisfying the claimed structural limitations.” This point is irrelevant, however, to the Examiner’s burden of articulating a reason to combine the asserted references. It is insufficient for the Examiner to merely state the advantages of a particular limitation, i.e., to merely note that adding ESD protection would be desirable to prevent damage to an amplifier. The fact that references *can* be combined is insufficient to establish obviousness - rather, the Examiner must point to a reason for this modification to be made. *See KSR Intl. Co.*, 127 S.Ct. at 1741; *see also In re Gorman*, 933 F.2d 982, 987 (Fed. Cir. 1991) (“It is impermissible, however, simply to engage in a hindsight reconstruction of the claimed invention, using the applicant’s structure as a template and selecting elements from references to fill the gaps. . . The references themselves must provide some teaching whereby the applicant’s combination would have been obvious.”). The Examiner has cited to no such suggestion in Rutfors or in the art. Therefore, Applicants respectfully assert that the Examiner has not presented a reasonable rationale for combining Rutfors and Jenkins, and claim 1 is allowable for at least these additional reasons.

Claim 9 is directed to a low noise amplifier that includes receiving means for receiving an RF input and shunting means to shunt ESD current during positive and negative ESD events away from the receiving means and through a first supply. The shunting means includes a pair of diode means and a separate clamping means directly coupled between a high voltage supply and a low voltage supply so as to provide a discharge path there between during an ESD event. For at least the reasons given above with respect to claim 1, claim 9 is also in allowable form.

Claim 17 is directed to an ESD protection circuit to shunt ESD current during positive and negative ESD events. The protection circuit includes a pair of diodes and a separate ESD clamp directly coupled between a high voltage supply and a low voltage supply so as to provide

a discharge path there between during an ESD event. For at least the reasons given above with respect to claim 1, claim 17 is also in allowable form.

Claim 24 is directed to an ESD protection circuit that includes shunting means for shunting ESD current during positive and negative ESD events and a separate clamping means directly coupled between a high voltage supply and a low voltage supply so as to provide a discharge path there between during an ESD event. The shunting means includes a pair of diode means. For at least the reasons given above with respect to claim 1, claim 24 is also in allowable form.

Claim 31 is directed to a method for discharging ESD that includes providing a first direct discharge path between an input/output pad and a first supply, providing a second direct discharge path between the input/output pad and the first supply, providing a third discharge path between the first supply and a second supply during an ESD event; and shunting ESD current during positive and negative ESD events through one of the first discharge path and the second discharge path. For at least the reasons given above with respect to claim 1, claim 31 is also in allowable form.

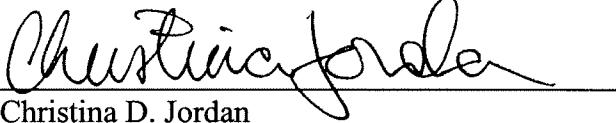
Applicants respectfully request that the rejection of claims 1, 9, 17, 24, and 31, and all claims depending from any of claims 1, 9, 17, 24, and 31, be withdrawn.

III. Conclusion

The fee in the amount of \$510 for the Notice of Appeal is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 12/18/07


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